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1999 November 1

Magalie Roman Salas, Secretary  
Federal Communications Commission  
445 12<sup>th</sup> St., SW  
Washington, DC 20554

Re: **Notice of Ex Parte Presentation**  
**Numbering Resource Optimization**  
CC Docket No. 99-200

Dear Ms. Salas:

This is to provide notice that Richard C. Levine, Principal Engineer of Beta Scientific Laboratory, Inc., and Tim Fitzgibbon, Esq., Counsel for Beta, met on October 29, 1999, with Jared Carlson, Patrick Forster, Aaron Goldberger, Tejal Mehta and Blaise Scinto, of the Network Services Division, Common Carrier Bureau. An original and one copy of this letter are being submitted to you for inclusion in the record in this proceeding, and a copy is being provided to each of the above named FCC staff members.

The attached slide presentation was given to these FCC staff members. We requested the FCC to take actions to move the development of a standard for System Beta, which is currently tabled in the ATIS T1S1.3 standards committee as described on slide 18, page 9, and to clarify FCC policy on several topics described on slide 20, page 10.

If you have any questions regarding the above information, please contact the undersigned.

Sincerely yours,

*Richard Levine*

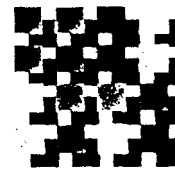
Richard C. Levine

Enclosure: Copy of slide presentation  
cc: (without enclosure) Jared Carlson  
Patrick Forster  
Aaron Goldberger  
Tejal Mehta  
Blaise Scinto

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## System Beta

- *Solves* the telephone number exhaustion problem
- *Stops* new area codes in first 2 years.
- Produces eventual *re-consolidation* of existing multiple area codes.
- Much *lower cost* than split/overlay of more area codes and eventual 4-digit area codes
- *Simpler* to use-- eventually restores 7-digit local dialing
- *Action is needed* to keep System Beta moving towards implementation.

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## How Serious is the Situation?

- Telephone Number Exhaustion is overtaking every metropolitan area
- The only present industry response is adding new area codes via split or overlay, usually accompanied by (FCC-mandated) 10-digit local dialing
- Every first round comment on FCC Docket 99-200 implicitly assumed this is inevitable!

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## Quantitative Problems...

- About 50 new US area codes per year
  - perhaps for up to 30 more years
- High ~\$1B annual cost to telephone industry (particularly the first metro area split/overlay)
- **Very high cost to public**
  - **time**: 10-digit dialing, bigger directories, etc.
  - **money**: signs, stationery, literature, reprogram alarm dialers, PBXs, etc.
  - **irritation**: number look up, more dialing errors, etc.

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## Isn't There a Better Way?

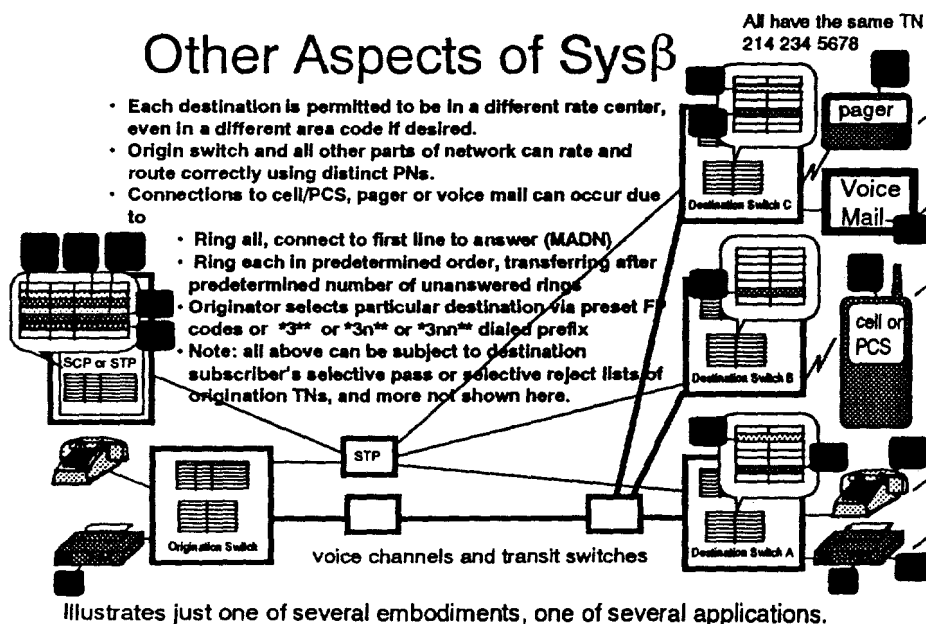
- Inevitable result of present technology path is, by about the year 2006:
  - "Flash cut" to introduce 4-digit area codes
  - and/or, 8-digit "local" telephone numbers
- Both of these require costly widespread switch software upgrades
  - well over 60 million caller ID devices become obsolete (also in System Beta)
  - does not end the cost and problem of more area codes

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## System Beta is a Technology Solution to this Problem

- Only software changes are needed in the North American Public Switched Telephone Network (eventually caller ID box upgrades)
- Unlike 4-digit area codes, System Beta can be phased in gradually
  - Caller ID boxes will need replacement/upgrading, but on a more gradual schedule than for 4-digit area codes (many Call-ID boxes are subsidized by telco; cost less than 1 month of Call-ID service)
  - Optional reprogramming of only a few (very large) PBXs (about 1000 such in all of North America)

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## User Perception of System Beta

- All secondary lines (fax, cell 'phone, data terminal, pager, etc.) for a subscriber's business service are keyed to his/her business prime number (main wire voice line), and
- All secondary residential lines (teenager line, cell 'phone, fax, pager, etc.) are keyed to his/her prime residential number
  - Old distinct decimal telephone number of some (not all) secondary lines is temporarily retained (if needed) during a 2+ year transition interval
  - Eventually these secondary lines have no decimal telephone number of their own (they each get a distinct non-decimal non-dialable internal "pseudo-number")

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## Some Properties of System Beta

- End user via dial (or telco in some cases) can optionally "mark" each line with one or more functional purpose codes. Simple examples (suggested codes- actual codes to be determined):
- cell 'phone (via dialing a code such as \*3299 or 113299)
  - fax line (\*333 or 11333 from a rotary dial)
  - accounts payable department (\*3547)
  - fax line of the accounts payable department (\*333\*3547)
  - codes can also be set differently for incoming vs. outgoing, etc.
- Approximately 45 codes have been proposed. They would be printed on a page in the front of the telephone directory.
  - System Beta can guide user via voice response, read back current status of line codes, etc. A graphic user interface can be used by "high tech" users.
  - Compatible technical line types (origin-destination) will automatically connect: example is fax-to-fax
- Voice group (wired voice, cell, pager) will connect as pre-set by destination end user: e.g. ring-all-connect-one (RACO) vs. sequential hunt group (SHG)
  - Cellular line is protected against undesired callers using present selective blocking technology now (new technology later)

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## What About Multiple Functions Used on the Same Line?

- Caller can permanently/temporarily change the function code settings from the dial.
- Example: Small office using same line for both voice (primarily) and fax:
  - Pre-set incoming codes for both fax and voice
  - Pre-set outgoing code for voice (primary use)
  - Dial all local voice calls with seven digits
  - On outgoing fax calls only, dial a fax prefix (this dialing can be built into the fax machine), which affects only this one call, and automatically returns condition to preset (voice) status afterwards
  - Suggested fax prefix is \*333 (or 11333 on rotary dial) but actual prefix to be set by appropriate industry standards group

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## Some Examples of Use...

- Jones family (tel.765 4321) has 2 residential voice lines for adults, a cell 'phone (all in a RACO group), a teenager<sup>1</sup> line, and a fax-data line. Smith family (tel. 234 5678) has one main voice line, one teenager line, and a fax line.
  - Jones parent calls Smith parent by dialing 765 4321
    - Usually one of the wire voice lines will answer first. If cell phone line is allowed for this call and is first to answer, Smith parent will receive the call on the cell 'phone.
    - Jones parent specifically wants to call Smith's cell phone, and thus dials \*3299 765 4321
  - Jones fax calls Smith fax by dialing 765 4321
  - Jones teen calls Smith teen by dialing 765 4321
  - Jones teen calls Smith parent by dialing \*3420 765 4321

Note 1: System Beta has several teen's age groups. Example assumes both teens are in same age group.

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## Compatiblity During Transition, and for Foreign Callers

- All appropriate lines are assigned pseudo-numbers. Decimal telephone numbers from certain types of secondary lines are immediately retired from service upon System Beta installation, then aged, reissued. e.g.: Certain public coin telephones, secondary hunt-group-only lines, etc.
- North American callers from "old" parts of the network can dial the temporarily-retained old distinct decimal numbers on pre-existing fax, teenager, etc. secondary lines
- When a secondary line in the Beta area is found\* not to receive any more decimal dialed calls, its decimal number is returned
- Lines which continue to receive decimal-dialed calls from abroad can be reached via dialed international code "in-fix." Example: British caller dials 010 1 133 214 233 4552 to reach fax line of US destination subscriber whose prime voice number is 214 233 4552. Underlined part meets ITU 15-digit international limitation. Gateway switch translates into \*333 214 233 4552 inside USA. (Other methods also.)

\*Technology to print the peg count to display this on the monthly bill is an existing capability. Details explained in other documents.

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## About "Stranded" Numbers and LNP

- Some industry observers contend that stranded numbers are an equal or larger cause of number exhaustion than multiple numbers per subscriber
  - System Beta can "port" stranded numbers either locally or non-locally
    - Unlike LRN porting, System Beta allows one decimal central office code to support multiple rating zone centers without confusion to either billing or switching.
    - Calls to a non-local rate center can be identified *in real time* and a warning ("required 1 prefix" announcement) can be employed\* even when local and non local rate centers share the same decimal central office code
- \*using only 3-digit translation on the central office code of the System Beta "pseudo-number"
- System Beta reduces number consumption regardless of presence or absence of stranded numbers in an area code
  - System Beta ultimately allows 7-digit local dialing, while LNP porting requires 10 (or 11 or 12) digit local dialing if line demand exceeds 7.92 Million in an original single area code.

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## System Beta is Far Less Costly to the Telephone Industry

- Cost of complete switching software upgrade is closely comparable for System Beta vs. 4-digit area codes et al, ~\$7 Billion either way
- But System Beta stops the ongoing ~\$1 B annual cost of additional area codes
  - Slight additional service order handling costs following installation are more than compensated by reduction in other costs and by new revenue.
  - Service order taker must key new line to subscriber's prime line telephone number.

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## System Beta Stops Most Added End User Costs

- As System Beta re-consolidates previously split/overlaid area codes, permissive dialing of either 7- or 10-digit format can be supported indefinitely
- No changes are needed in area codes on signs or stationery (using multiple alias area codes)
  - Removal from service of secondary telephone numbers is gradual (2 years or more) and can be reflected in normal stationery replenishment cycles
  - No consequent reprogramming of alarm dialers, PBXs, etc. is required (not to be confused with the limited large PBX reprogramming noted previously)
  - Vast majority of Caller ID equipment was/will be a "free" gift to most service subscribers, and included in our cost projections. Cost per line for other non-subsidized Call-ID is ~\$1 per line.

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## Total (industry + public) Cost Ratios

- Best case: Continuing splits/overlays with 4-digit area codes is over 8 times as costly as System Beta ( $\$50B/\$6B = 8.4$ )
- Worst case: Continuing splits/overlays with 4-digit area codes is over 21 times as costly as System Beta ( $\$150B/\$7B = 21.4$ )

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## Where Does System Beta Stand?

- Tabled (April 1999) by ATIS T1S1.3 Standards Committee, based on:
  - Interactions with \*66 and \*69 callback features during transition, and ultimate incompatibility with 10-digit caller ID customer equipment
  - Since the tabling date, we believe that new industry standards for caller ID equipment (also required for 4-digit area codes as well) and use of temporary decimal numbers and/or appropriate partial software upgrades will adequately address these technical issues.
  - Lack of a sponsor with proper standing before the T1S1.3 standards committee

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## What Action is Desired?

- A sponsor with suitable standing to ask the T1S1.3 standards committee to write an industry standard for System Beta.
  - Without an agreed industry standard, System Beta can only be implemented in a proprietary rather than universal North American implementation.
  - Assignment of the preferred vertical service code prefix \*3- (113- for rotary dial) for System Beta.
  - This is a major request, but System Beta promises full value by solving major problems.

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## Benefits

- System Beta is simpler to use:
  - Most local dialing on most calls is ultimately 7-digits instead of 10, 11 or 12 digits on *all* local calls.
  - Only users making an unmatched non-primary call will dial a call-time prefix
    - All machine dialed calls (fax, data, etc.) can have this programmed in automatically and dialed by machine
    - If a caller is dialing a \*3nn(n) prefix on the majority of calls, then that caller made the wrong initial choice for the preset origination functional code(s)!
    - System Beta is far less costly to both the telephone industry and the public.
- System Beta simplifies and improves existing services (like automatic intercept service and emergency call diversion) and provides new revenue sources.

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## Three-way Comparison

Issue →	Problem Cause(s) Addressed by this Method	Cost	Eventually expansion of NANP? (4- digit NPA and/or 8- digit local)	Simplicity of use	CPE changes?	Local service provider number administration?	100% advance network upgrade required?
Existing Area Code Split/Overlay Problems	High telephone number consumption.	\$50B to \$150B <sup>f</sup>	yes, inevitable	Requires 10- digit local dialing, more digits in future.	Caller ID replacement <sup>g</sup> . Extensive PBX reprog.	Not required	NANP expansion requires 100% advance upgrade <sup>h</sup>
LRN Local Number Porting of Stranded Numbers	Stranded numbers in same rate center	~\$50B <sup>h</sup>	Inevitable	Requires 10- digit local dialing, more digits in future.	Caller ID replacement <sup>g</sup> . Extensive PBX reprog.	Allocation Administration required	LRN can be installed gradually.
System Beta	Both high number use and stranded numbers in same or distinct rate centers.	\$7B <sup>i,j,k</sup>	Future 7- digit local dialing, 10- digit long distance <sup>g</sup>	Future 7-digit local dialing, 10- digit long distance <sup>g</sup>	Caller ID replacement <sup>g</sup> . Little PBX reprog.	Minimal allocation admin for TNA, none for PNA. Quantitatively less admin in cases <sup>h</sup>	System Beta can be installed gradually <sup>g</sup> .

Notes: a) Most caller ID equipment replacement is assumed to be subsidized by service providers; cost is included in column 3.  
b) Cost estimates do not include hardware or software already installed or committed specifically due to local number portability.  
c) Transit switches serving System Beta areas must be upgraded in advance of System Beta use, although not all end switches need upgrade.  
d) LRN can avoid more than 10 digits only if rate centers can be enlarged and consolidated without limit. Essentially equivalent to nationwide 10 digit dialing without pricing or rate center distinctions. (Actually, 9 digits would work in this case since 10<sup>9</sup> > 310M North American population.)  
e) Some calls require pre-coding. A small percent of calls would require dialed prefix if destination functional purpose codes do not match present origin codes. f) FCC estimate. g) Permissive dialing interval is allowed following 100% network switch upgrade for expanded NANP. h) Estimate by Beta Laboratory. i) Administrative allocation is required in System Beta only for new primary decimal numbers. Once a subscriber has a primary decimal number, an unlimited quantity of secondary lines can be put in service using Pseudo Numbers. j) Also, System Beta supports new optional vertical services and operational cost reductions to be offered by service providers. This will provide added income to help amortize the installation cost. The other methods have no such benefits.

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## What is National Numbering Policy?

- Absence of clearly stated national policy allows each interest group to interpret for their own ends
  - Opponents claim System Beta is not consonant with the opponents' interpretations of national policy. Some examples follow:
- Must each and every line have a distinct decimal number?
  - If this is a desired objective, then System Beta is only valuable for porting across rate centers and for one-number services.
  - Bear in mind present existence of un-labeled public coin telephones (which nonetheless each consume a decimal number)
- Is preservation or restoration of 7-digit local dialing a desirable national objective?
  - Now technologically feasible with System Beta.
  - Level competitive playing field for all service providers is now feasible with System Beta
  - Highly valuable for people with disabilities
- Should subscriber be "warned" of every extra cost call, and affirm via a dialing action?
  - Not presently done for "976" local calls
  - System Beta more simply permits warning announcement and affirmative caller action such as a dial-1 prefix to affirm.

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## Our Conclusion

- When compared with other alternatives, System Beta is the most practical, easiest transition, lowest cost, and simplest to use.
  - Most callers, for most local calls, dial only 7 digits (vs. 10 or more for present methods)
  - Most cases of extra dialed digits are dialed by machines (fax, etc.) which can do so automatically
- A sponsor is needed for an industry standard action by T1S1.3
- The vertical service code \*3 (or 113) is the technologically best and desired choice for System Beta

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